

32630

S/137/61/000/011/120/123  
A060/A101

Determination of sulfur ...

of S and the distillation of H<sub>2</sub>S proceeds for 2 hrs. The CdS precipitate is dissolved in a mixture of 10 - 15 ml of 0.005 N solution of I<sub>2</sub> and 10 ml of HCl (1:1), and the solution is titrated with a 0.003 N solution of Na thiosulfate. The determination of S in WO<sub>3</sub> and MnO<sub>3</sub> is also carried out by starting out with the process of S reduction in an alcohol medium. The precision of the determination constitutes 3·10<sup>-4</sup> g S. There are 5 references.

B. Melent'yev

[Abstracter's note: Complete translation]

Card 2/2

S/137/62/000/001/236/237  
A154/A101

AUTHORS: Shcherbakov, V. G., Yurkevich, Yu. N., Besproskurnov, G. G.

TITLE: Using the radioactive isotope of phosphorus P<sup>32</sup> to test the colorimetric method of determining phosphorus in tungstic anhydride

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 1, 1962, 13, abstract 1K84 ("Sb. tr. Vses. n.-i. in-t tverdykh splavov", 1960, no. 3, 37 - 43)

TEXT: The colorimetric method of determining P was tested by introducing the radioactive isotope P<sup>32</sup> into tungstic anhydride and observing its behavior in the process of chemical analysis. It was established that the losses of P with the insoluble remainder are <3%, and that ~3% of P is also lost with the WO<sub>3</sub>. It was shown that the relative error is <15% when using this method to determine small amounts of P.

L. Vorob'yeva

[Abstracter's note: Complete translation]

Card 1/1

S/081/62/000/004/C31/087  
B149/B101

AUTHORS: Shcherbakov, V. G., Anikeyeva, N. P., Ignatova, A. Ya.,  
Marina, T. Z.

TITLE: A method of spectral analysis of impurities in metallic  
molybdenum of high purity

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 4, 1962, 151, abstract  
4D149 (Sb. tr. Vses. n.-i. inst tverdykh splavov, no. 3,  
1960, 56 - 63)

TEXT: A method of determining Pb, Sn, Bi, Sb, Cd, As, Ni, Zn, Cu, Fe, Al,  
Si, and Mg in molybdenum and molybdenum anhydride was worked out. The  
main feature of the method is fractional evaporation of the elements and  
excitation of their spectra. Metallic molybdenum is converted into molyb-  
denum oxide  $\text{MoO}_3$  by heating it in a muffle furnace at  $550 - 600^\circ\text{C}$ , the  
oxide is mixed with powdered carbon in the ratio 4:1. 130 mg of the mix-  
ture are placed in a carbon crucible with a lid. A carbon rod (the re-  
ceiver) is fixed at a distance of 2 mm above the crucible. The crucible

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S/081/62/000/004/031/087

B149/B101

A method of spectral ...

is heated in an arc up to 1900°C for one minute (60 sec exposure). This causes evaporation of the impurities, which are deposited on the receiver and are determined afterwards by the usual method with an ICP-22 (ISP-22) spectrograph. Systematic errors are decreased by the introduction of an internal standard of Ge. ( $\text{GeO}_2$ , 0.15% of the weight of the carbon powder).

A version of the method of determining Fe, Al, Si, and Mg only, provides the choice of the size of the carbons, the type of photoplates, and the conditions of photographing the spectra in a d. c. arc. [Abstracter's note: Complete translation.]

Card 2/2

60

SHCHERBAKOV, V.G.; STEGENDO, Z.K.

Determination of titanium, tantalum, and niobium in carbide  
mixtures. Zav.lab. 26 no.2:139-142 '60. (MIRA 13:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut tverdykh  
splavov.

(Titanium--analysis)  
(Tantalum--Analysis)  
(Niobium--Analysis)  
(Carbides)

35052  
S/700/61/000/006/005/018  
D217/D304

212405  
AUTHORS: Shcherbakov, V. G., Veytsman, R. M. and Stegenda, Z. K.

TITLE: Analysis of titanium, chromium and zirconium borides

JOURNAL: Akademiya Nauk Ukrainskoj SSR. Institut metallicheskikh i spetsial'nykh splavov. Seminer po zharkostoykim materialam. Kiyev, 1960. Trudy no. 6: Khimicheskiye svoystva i metody analiza tугоплавких соединений. Kiyev, Izd. Nauk. AS UkrSSR, 1961, 52-53

TEXT: The purpose of this work was to develop a simpler method for the decomposition of borides and the subsequent determination of their constituent components. The authors found that the borides and diborides of Cr, Ti and Zr are quantitatively decomposed by  $H_2SO_4$  in the presence of  $H_2O_2$ . The experiments carried out have shown that for the complete dissolution of Ti and Zr borides in a mixture of  $H_2SO_4$  and  $H_2O_2$ , heating until the separation of  $SO_3$  vapors commences is sufficient; Cr borides must be dissolved for a

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Analyse of titanium . . .

S/790/61/000/006/005/018  
B217/D304

further 5-7 minutes after separation of  $\text{SO}_3$  vapors and the appearance of  $\text{Cr}^{3+}$  ion coloration. The volatility of boron was also tested under conditions in which borides were dissolved in a flask provided with a condenser and in another without a condenser. The boron content was determined quantitatively by titrating the solution with alkali in the presence of phenolphthalein and mannite. The experiments showed that in the presence of  $\text{H}_2\text{O}_2$ , no loss of boron occurs due to volatilization. Thus dissolution of the borides in a mixture of  $\text{H}_2\text{SO}_4$  and  $\text{H}_2\text{O}_2$  can be carried out in an open flask, provided heating is discontinued at the moment at which  $\text{H}_2\text{SO}_4$  vapors separate. If, however, further heating of the fuming sulphate solution is required for complete dissolution, a flask with a stopper and a condenser must be used, since in that case boron is lost by volatilization. The method developed by the authors for the volumetric estimation of boron in borides which does not require preliminary separation of the elements, is fully described

Curri 2/3

Analysis of titanium ...

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D217/D304

The possibility of volumetric complexometric determination of Zr in a solution of zirconium boride in sulphuric acid has been proved. A method for reducing titanium without amalgamation, and its subsequent determination by a reductometric method, was developed. There are 1 figure, 6 tables and 3 Soviet-bloc references.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut tverdykh splavov (All-Union Scientific Research Institute of Hard Alloys) *X*

Card 3/3

S/700/61/000/006/011/018  
D267/D304

AUTHORS: Shcherbakov, V. G. and Steverdy C. K.  
TITLE: Determination of titanium, tantalum and niobium in carbide mixtures  
SOURCE: Akademiya nauk Ukrainskoy SSR. Institut metallicheskikh i spetsialnykh splavov. Seminar po zharkostykim materialam. Kiyev, 1960. Trudy no. 6: Khimicheskiye svyazivaniya metoda analiza tugeplavkikh soyedinenii Kiyev, Izdatelstvo AS UkrSSR, 1961, 88-92

TEXT: This research was carried out to fill the existing gap in literature on the separation and determination of Ta, Nb, Ti and W when present simultaneously. (1) Separation of Ta, Ti and Nb from W. The method suggested is based on the different stability of the oxalate complexes of the compounds. It was found that in the presence of  $(\text{COOH})_2$ , Ti, Ta and Nb are completely precipitated with  $\text{NH}_4^+$  from sulfate solutions, but only if all three elements are present simultaneously.

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S/700/61/000/006/011/018  
D867/D304

Determination of titanium \*\*\*

In very dilute acids up to 50% of Nb is precipitated from solutions containing tungsten and molybdenum. When Ta, Ti and Nb were precipitated with NH<sub>4</sub>ClO<sub>4</sub> in nitric acid, the oxides precipitated the presence of oxalic and tungstic acids. The oxide precipitates contained a certain proportion of W which had to be removed to determine Ta. Consequently, to separate the sum of Ti + Nb + Ta from W it is suggested precipitating hydroxides of Ti, Nb and Ta with NH<sub>3</sub> in a sulfate solution in the presence of oxalic acid. (2) To determine Ti in the presence of Nb and Ta, reduction in the presence of NaF is recommended. It was also found that tartaric acid was a complex-forming agent for preventing the reduction of Nb, and can be easily replaced with oxalic or citric acids. The reduction was titrated with iron alum in the presence of NH<sub>4</sub>CNE. The method was found to be accurate. (3) Determination of Ta in the presence of Ti was performed by precipitation from a sulfate solution with dimethylaminoline in the presence of H<sub>2</sub>O<sub>2</sub> to reduce the carbide precipitation of Ti. The carbide mixture is dissolved in a mixture

\*\*\* p. 4

S/700/61/000/006/011/018  
D267/D204

Determination of titanium ...

of  $H_2CO_4$  and  $(NH_4)_2SO_4$ . The solution is cooled, oxalic acid and water are added and Ti and Ta are precipitated with an excess of  $NH_3$ . The precipitate is coagulated, filtered, washed, ignited and dissolved in  $H_2SO_4/(NH_4)_2SO_4$ . The solution is cooled and diluted with water after which alc.  $\beta$ -naphthoquinoline is added. After 3 minutes  $H_2O_2$  is added, the whole is mixed thoroughly and left for a few hours. The precipitate is filtered, washed, dried and ignited. It is then dissolved in  $H_2SO_4 + (NH_4)_2SO_4$  and diluted with water. Ta is precipitated with  $NH_3$ , filtered off, dried, ignited and weighed. The relative error varied from 0 to -2.4%. (4) In determining niobium with  $\beta$ -naphthoquinoline, it was found that Nb is precipitated quantitatively from sulfate solutions which contain no more than 1.5% (by volume) of  $H_2SO_4$ . On the other hand, if this reagent is used to precipitate the sum Nb + Ta, then the acidity of the solution should not be less than 2% (with respect to  $H_2SO_4$ ). ✓

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Determination of titanium ...

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D267/D304

as otherwise the Ta compound is hydrolyzed. With precipitating  
Nb + Ta one should not add  $H_2O_2$ . Determination of Nb + Ta by  
means of 2-naphthoquinoline is sufficiently accurate. There are 5  
tables and 10 Soviet-biso references.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut tver-  
dykh splavov (All-Union Scientific Research Insti-  
tute of Hard Alloys)

Card 4/4

S/700/61/000/006/013/018  
D267/D504

AUTHORS: Yarkevich, Yu N. and Shcherbakov, V. G.

TITLE: Method of determining oxygen in titanium carbide

SOURCE: Akademiya nauk Ukrainskoy SSR. Institut metallokeramiki i spetsial'nykh splavov. Seminar po zharostoykim materialam. Kiyev, 1960. Trudy no. 6: Khimicheskiye svoystva i metody analiza tugoplavkih soyedineniy. Kiyev. Izd. vo AS UkrSSR. 1961, 101-108

TEXT: The authors studied the reaction  $TiO_2 + 3C \rightarrow TiC + 2CO$  with the aim of finding the conditions at which oxygen can be completely separated, by measuring the quantity of CO separated. The apparatus used was that developed and constructed at the TsNIIChERMET. The charge was obtained by ball-milling purified  $TiO_2$  with lampblack for 48 hours. The TiC specimens used were obtained in powder form and were analyzed for Ti, total and free C. The reaction was studied without pumping. To measure the amount of gas separated during

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D267/D304

Method of determining ...

In the reaction the apparatus was pumped down to  $10^{-5}$  mmHg, the pump was disconnected and the mixture  $TiO_2 + 3C$  in a cartridge was put into the furnace heated to the desired temperature, in which it was kept for 60 minutes. It was found that in all cases a constant pressure was established. After cooling, the separated gas was pumped off from the reaction space and analyzed for  $O_2$ . The amounts of CO obtained during carbidization at various temperatures between 1180 and 1250°C were determined. The reaction is very slow at 1200°C, but from 1350°C the amount of CO obtained is quite considerable, and only depends little on temperature. When measuring the time-dependence of the pressure developed by the overall reaction, it was found that the time required for establishment of constant pressure increases with the sample weight. Since it is impossible to eliminate the whole of the  $O_2$  in the form of CO, by merely raising the temperature of carbonization, it is necessary to remove the CO formed in order to shift the reaction towards the formation of TiC. The reaction virtually does not take place at 1182°C, whereas

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Method of determining ...

3/100/000/006/013/018  
D267/1304

at  $1280^{\circ}\text{C}$  about 300 ml of CO evolves, and at  $1300 - 1900^{\circ}\text{C}$  the difference between experimental and theoretical values does not exceed the experimental error. Consequently, the following conditions were chosen for determining  $\text{O}_2$  in TiC: pumping down to  $1 - 2 \times 10^{-2}$  mmHg, and a temperature of  $1800 - 1850^{\circ}\text{C}$ . TiC sample with  $\sim 10\%$  lampblack was ground with some EtOH and put into the graphite boat. The furnace was degassed down to  $1 - 2 \times 10^{-2}$  mmHg at  $> 2000^{\circ}\text{C}$  and the temperature was lowered to  $\sim 1800^{\circ}\text{C}$ . The blank correction of the apparatus was determined, and the cartridge with the sample was dropped into the furnace. The evolving gases were collected and analyzed for  $\text{O}_2$ . The results are discussed. There are 5 figures, 4 tables and 16 references: 10 Soviet-bloc and 6 non-Soviet-bloc. The reference to the English-language publication reads as follows: E. Beckmann, J. Amer. Chem. Soc., 52, 3956, (1930). ✓

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut tverdykh splavov (All-Union Scientific Research Institute of Hard Alloys)

Card 3/3

S/700/61/000/006/015/018  
D267/D304

AUTHORS: Shcherbakov, V. G. and Anikeyev, N. P.

TITLE: Spectrom analysis of high-purity tungsten and molybdenum

SOURCE: Akademicheskaya nauk Ukrainskoy SSR. Institut metallskeramiki i spetsial'nykh splavov. Seminar po khimicheskym materialam. Kiyev, 1960. Trudy no. 6: Khimicheskiye svyazivaniya i metody analiza tугоплавких соединений. Kiyev, Izd. vch AN UkrSSR, 1961, 114-120

TEXT: The authors used two methods: 1) The method of fractional distillation in d.c. arc, and 2) the method of physical enrichment of the sample by means of an evaporating apparatus. In the case of W, the first method was used for determining the Fe, Al, Si, As, Mg, Cu, Zn, Ni, Cr impurities in  $W_3O_8$ ,  $H_2WO_4$ ,  $(NH_4)_6W_7O_{24}$ , and W metal. The second method, developed by Professor Mandel'shtam, was applied to determining admixtures of Pb, Sn, Cd, Bi and Sn in  $W_3O_8$ .

Card 1/2

YURKEVICH, Yu.N.; SHCHERBAKOV, V.G.

Determination of small amounts of sulfur in tungsten and molybdenum.  
Zhur.anal.khim. 16 no.5:617-619 S-O '61. (MIRA 14:9)

1. All-Union Scientific Research Institute of Hard Alloys, Moscow.  
(Sulfur--Analysis) (Tungsten--Analysis) (Molybdenum--Analysis)

S/032/63/029/003/004/020  
B117/3186

AUTHORS: Tumanov, V. I., Trukhanova, Z. S., Funke, V. F., and  
Shcherbakov, V. G.

TITLE: Electrochemical separation and investigation of the  
cementation and the carbide phases of high tungsten cobalt  
alloys

PERIODICAL: Zavodskaya laboratoriya, v. 29, no. 3, 1963, 277-280

TEXT: To determine the composition of the binding phase in WC - Co  
alloys it was suggested to separate electrochemically the binding and  
the carbide phase, and to analyze chemically the alloying components.  
Caustic soda and hydrochloric acid solutions were used as electrolytes  
and spectroscopically pure graphite electrode as cathode for the  
electrochemical phase separation. The polarization curves plotted for  
pure WC and Co at 25°C showed: In 3 M HCl solution, Co dissolves  
intensely at an anode potential of ~0.1 v and a current density of  
0.03 a/cm<sup>2</sup>. The anode potential of WC is 0.5 v without voltage applied.  
When the potential increases to 1.1 - 1.2 v, gaseous chlorine is

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S/032/63/029/003/004/020

B117/B186

Electrochemical separation and ...

separated out and the carbide oxidizes. In 6 M NaCl solution the anode potentials of Co and WC are 0.5 and 0.20 v without voltage being applied. At ~ 0.6 a/cm<sup>2</sup>, an intensive discharge of oxygen occurs at the WC anode. WC oxidizes to  $\text{WO}_3$ , and decomposes to sodium tungstate at ~ 0.8 v. On the Co anode, oxygen is separated out at ~ 0.8 v, and the anode becomes passive. The difference in anode potentials of WC and Co permits the electrochemical separation of the binding and the carbide phase. In electrolytes of different concentrations the WC and Co phases could be dissolved selectively even at high current densities. Optimum conditions for isolating the binding and the carbide phase: for the Co phase, 6 M HCl, 0.03 a/cm<sup>2</sup>, electrode voltage 0.8 - 0.9 v; for the WC phase, 6 M NaOH, 0.6 a/cm<sup>2</sup>, and 3 v. The method was used to separate the phases mentioned in WC - Co alloys containing molybdenum, chromium, and aluminum. The phase composition and the lattice constant of the Co phase in alloys containing less than 4% by weight of Co could be determined by electrolytic enrichment with Co of the alloy surface. There are 2 figures and 4 tables.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut tverdykh splavov (All-Union Scientific Research Institute of High Alloys)

Card 2/2

AGALINA, M.S., inzh.; AKUTIN, T.K., inzh.; APRESOV, A.M., inzh.; ARISTOV, S.S., kand. tekhn. nauk.; BELOSTOTSKIY, O.B., inzh.; BERLIN, A.Ye., inzh.; BESSKIY, K.A., inzh.; BLYUM, A.M., inzh.; BRAUN, I.V., inzh.; BRODSKIY, I.A., inzh.; BURAKAS, A.I., inzh.; VAYNMAN, I.Z., inzh.; VARSHAVSKIY, I.N., inzh.; VASIL'YEVA, A.A., inzh.; VORONIN, S.A., inzh.; VOYTSEKHOVSKIY, L.K., inzh.; VRUBLEVSKIY, A.A., inzh.; GERSHMAN, S.G., inzh.; GOLUBYATNIKOV, G.A., inzh.; GOHLIN, M.Yu., inzh.; GRAMMATIKOV, A.N., inzh.; DASHEVSKIY, A.P., inzh.; DIDKOVSKIY, I.L., inzh.; DOBROVOL'SKIY, N.L., inzh.; DROZDOV, P.F., kand. tekhn. nauk.; KOZLOVSKIY, A.A., inzh.; KIRILENKO, V.G., inzh.; KOPELIANSKIY, G.D., kand. tekhn. nauk.; KORETSKIY, M.M., inzh.; KUKHARCHUK, I.N., inzh.; KUCHER, M.G., inzh.; MERZLYAK, M.V., inzh.; MIRONOV, V.V., inzh.; NOVITSKIY, G.V., inzh.; PADUN, N.M., inzh.; PANKRAT'YEV, N.B., inzh.; PARKHOMENKO, V.I., kand. biol. nauk.; PINSKIY, Ye.A., inzh.; POLLUBNYI, S.A., inzh.; PORAZHENKO, F.F., inzh.; PUZANOV, I.G., inzh.; REDIN, I.P., inzh.; REZNIK, I.S., kand. tekhn. nauk.; ROGOVSKIY, L.V., inzh.; RUDERMAN, A.G., inzh.; RYBAL'SKIY, V.I., inzh.; SADOVNIKOV, I.S., inzh.; SEVER'TANOV, N.N., kand. tekhn. nauk.; SEMESHKO, A.T., inzh.; SIMKIN, A.Kh., inzh.; SURDUTOVICH, I.N., inzh.; TROFIMOV, V.I., inzh.; FEFER, M.M., inzh.; FIALKOVSKIY, A.M., inzh.; FRISHMAN, M.S., inzh.; CHERESHNEV, V.A., inzh.; SHESTOV, B.S., inzh.; SHIFMAN, M.I., inzh.; SHUMYATSKIY, A.F., inzh.; ~~SHCHEPENKO, V.I.~~, inzh.; STANCHENKO, I.K., ovt. red.; LISHIN, G.L., inzh., red.; KRAVTSOV, Ye.P., inzh., red.; GRIGOR'YEV, G.V., red.; KAMINSKIY, D.N., red.; KRASOVSKIY, I.P., red.; LEYTMAN, L.Z., red. [deceased]; GUREVICH, M.S., inzh., red.; DANILEVSKIY, A.S., inzh., red.; DEMIN, A.M., inzh., red.; KAGANOV, S.I., inzh., red.; KAUFMAN, B.N., kand. tekhn. nauk. red.; LISTOPADOV, N.P., inzh., red.; MENDELEVICH, I.R., inzh., red. [deceased];

{continued on next card)

AGALINA, M.S.... (continued) Card 2.

PENTKOVSKIY, N.I., inzh., red.; ROZEMBERG, B.M., inzh., red.; SLAVIN,  
D.S., inzh., red.; FEDOROV, M.P., inzh., red.; TSYMBAL, A.V., inzh., red.;  
SMIRNOV, L.V., red. izd-va.; PROZOROVSKAYA, V.L., tekhn. red.  
[Mining ; an encyclopedic handbook] Gornoe delo; entsiklopedicheskii  
spravochnik. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po ugol'noi'  
promyshl. Vol. 3.[Organization of planning; Construction of surface  
buildings and structures] Organizatsiya proektirovaniia; Stroitel'stvo  
zdanii i sooruzhenii na poverkhnosti shakht. 1958. 497 p. (MIRA 11:12)  
(Mining engineering)  
(Building)

SHCHERBAKOV, V.I., gornyy inzh.

Some shortcomings in the construction and use of cableways for  
waste dumping in Donets Basin mines. Ugol' Ukr. 3 no.8:46-47  
Ag '59. (MIRA 12:12)  
(Donets Basin--Cableways) (Donets Basin--Mine haulage)

SHCHERBAKOV, V.I.

Improvement of BDK-TsNII-57 dispatcher control networks. Avtom.,  
telem. i sviaz' 7 no.11:25-27 N '63. (MIRA 16:12)

1. Starshiy elektromekhanik Krasnoyarskoy distantsii signalizatsii  
i svyazi Vostochno-Sibirskoy dorogi.

MIROSHNICHENKO, G.K., dots.; VASIL'YEV, A.G., kand.tekhn.nauk;  
SHCHERBAKOV, V.I., inzh.; LUR'YE, D.A., inzh.

Automatizing the process of cupola charging and level control  
by means of radioactive isotopes. Lit.proizv. no.8:14-15 Ag '57.  
(MIRA 10:10)

(Cupola furnaces)  
(Gamma rays--Industrial applications)

SHCHERBAKOV, V.I.; SHUKHMAN, M.I.

Symbols used for skeleton diagrams of hydraulic and pneumatic drives in the United States. Stan.i instr. 28 no.9:29-34 S '57.  
(MIRA 10:10)

(United States--Signs and symbols)  
(United States--Machine tools--Pneumatic driving)  
(United States--Machine tools--Hydraulic driving)

SHCHERBAKOV, V., inzh.; URYUTIN, L., inzh.

Device for automatic control of compressor lubrication. Khol.  
tekh. 35 no. 3:57-58 My-Je '58. (MIRA 11:?)  
(Compressors)  
(Automatic control)

S/121/59/000/12/001/003

5.15<sup>a</sup>0

AUTHOR:

Shcherbakov, V. I.

TITLE:

Air Distributors With Pneumatic Control 3

PERIODICAL: Stanki i Instrument, 1959, No 11, pp 8 - 11

TEXT: The author remarks that the remote control by air distributors is effected with the aid of auxiliary valve-type or slide valve-type air devices of relatively small dimensions. Figure 1 shows the mechanism of the most simple pneumatic drive in which an air distributor with a flat slide valve and a pneumatic control with the aid of auxiliary three-way valves is used. The author gives a detailed description of the device and points out that the starting valve plays the role of the control organ "start" and "preliminary stop". The valves in the mechanism effect the travel control of the unit parts and, therefore, they can be called, similarly to the electric motion switches, pneumatic motion controls (PMC). Figure 2 shows an air distributor, the description of which is given, while Figure 3 shows a three-way PMC and Figure 4 a starting valve. In Figure 5 the scheme of a pneumatic drive is depicted, the operation of which is described by the

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Air Distributors With Pneumatic Control

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author. As it is the case with the drive in Figure 1, also here the commands "start" and "stop" are carried out by the starting valve. Figure 6 shows a pneumatic drive scheme which differs from the one shown in Figure 1 in that way that air distributors are employed with air escape into the atmosphere from the control piping, which made it possible to replace the three-way PMC by two-way ones. The author describes the functioning of this drive. Figure 7 shows an air distributor construction which is controlled by compressed air exhaust into the atmosphere, while Figure 8 gives a general view of the two-way PMC. The control of air distributors with the aid of two-way PMC has the advantage of requiring only one pipeline for the connection of these PMC with the pneumatic system, while, on the other hand, they possess the deficiency of calling for a better filtration of the compressed air, in comparison with the three-way PMC. Figure 9 shows a differential air distributor with a three-way PMC control, and Figure 10 the application of this air distributor to impart a reciprocating motion to a piston. The author points out that an efficient operation of air distributors depends on the quality of the compressed air. The supplied compressed air should be purified.

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Air Distributors With Pneumatic Control

S/121/59/000/12/001/003

from moisture and fine solid particles. Besides, it is necessary to add sprayed oil to the air flow in order to ensure the lubrication of the movable parts of the pneumatic device. The described air distributors with connecting threads of K3/8" and K1/2" were designed at the ENIMS.  
Ten graphs.

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3/14/00/00/00/0000000000  
A004/A001

AUTHORS: Shcherbakov, V. I., Yuditskiv, S. A.

TITLE: The Designing of Pneumatic Automation Systems With Pneumatic Path Control

PERIODICAL: Stanki i Instrument, 1960, No 10, pp. 1-5

TEXT: The authors give an account of the method developed by the ENIMS of building schematic pneumatic circuits for pneumatic automation systems. The orders determining the operation of the system are transmitted by the cylinder rods at the end points of their paths (path control). The pneumatic equipment necessary for the cycle, can be divided into order devices, control devices, intermediate and additional devices. In order to effect complex cycles with path control with the aid of pneumatic automation, the following main devices are necessary: path and separating valves, memory valves, controlling air distributors and pneumatic cylinders. Since a universal system of conventional notation of pneumatic devices does not exist, the authors suggest a conventional notation for the described method of building pneumatic circuits, which is somewhat more simplified than the semi-construtive presentation. In pneumatic circuits using

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S/121/60/000/010/001/015  
A004/A001

The Designing of Pneumatic Automation Systems With Pneumatic Path Control

conventional notations, cylinders, air distributors (controlling their operation) and path valves are laid out together, while order elements and control cavities of the air distributors are mapped separately. Fig. 5 shows a block diagram of such a pneumatic circuit. The authors indicate the following sequence for the designing of a pneumatic automation system: Plotting the cyclogram of cylinder operation - plotting the cyclogram of the path valve position, writing out the control orders for every cycle, inserting into a table the orders given by the path valves, the memory valves necessary, and also the orders which are not to be given at the given cylinder stroke - as well as the maintenance of this position at the end of this stroke. Then the cyclogram of the effects of the control orders has to be plotted. The orders whose execution is withdrawn have to be determined for every cycle by the table and cyclogram, and entered into the corresponding horizontal grain, while the sections of each order abolished have to be marked on the cyclogram. The possibility of abolishing the orders without introducing into the layout additional devices and at marking this on the operating cyclogram of the control orders should be used. Then the compressed-air supply lines for the valves whose orders are to be abolished have to be mapped,

Table 2/3

S/121/60/000/010/001/016  
A004/A001

The Designing of Pneumatic Automation Systems With Pneumatic Push Control

and the number of memory valves necessary and orders controlling their switching determined. The abolishment is indicated on the operation cyclogram of the control orders. All devices and their connection should be indicated on the pneumatic circuit and the orders controlling the manifold valves determined and indicated on the circuit. There are 7 figures and 5 references: 4 Soviet and 1 US.

✓

Card 3/3

POTEKUSHIN, Nikolay Vasil'yevich; SHCHERBAKOV, V.I., inzh., retsenzent;  
KOVALENKO, A.V., inzh., red.; DUGINA, N.A., tekhn.red.

[Economy of sheet metal] Ekonomiya listovogo metalla. Pod red.  
A.V.Kovalenko. Moskva, Mashgiz, 1961. 28 p.

(MIRA 15:2)

(Sheet-metal work)

ZAYCHENKO, I.Z.; MYSHEVSKIY, L.M.; ZAYTSEVA, K.V.; KAMENETSKIY,  
G.I.; MAZYRIN, I.V.[deceased]; SHCHERBAKOV, V.I.; LOZHGIN, O.V.;  
CHIGAREVA, E.I., red.; KOVAL'SKAYA, I.F., tekhn. red.

[Development of the designs of hydraulic and pneumatic equipment and of lubrication and filtration systems for machine tools abroad] Razvitiye konstruktsii gidravlicheskogo i pnevmaticheskogo oborudovaniia, smazochnykh i fil'truishchikh ustroistv metallorezhushchikh stankov za rubezhom; obzor. Moskva, TSINTIMASH, 1961. 101 p. (MIRA 16:5)

1. Moscow. Eksperimental'nyy nauchno-issledovatel'skiy institut metallocerezhushchikh stankov.  
(Machine-tools--Design and construction)

28J000 1089, 106X

10916  
3/121/61/G-0/c07/001/004  
D040/D112

AUTHORS: Pomerantsev, L.M., Shcherbakov, V.I., and Yuditskiy, S.A.

TITLE: Designs of pneumatic counting-memory systems

PERIODICAL: Stanki i instrument, <sup>32</sup> no. 7, 1961, 4-7

TEXT: The discussed pneumatic automatic control systems have been built and tested at the ENIMS pneumatics laboratory. The article presents a detailed discussion of general design principles of these systems, which are suitable for use in machines, machine tools, or automatic transfer lines. They have been described previously (Shcherbakov, V.I., and Yuditskiy, S.A., "Stanki i instrument", no. 10, 1960). A pneumatic memory unit - giving a command for actuating the work element of the machine after it has received a given number of pressure pulses - is included into the control system if the work element has to function periodically after a certain number of cycles. The interaction principle of counting-memory system elements is shown in a block diagram (Fig. 1) where the channels memorizing action pulses are marked  $1_n$ ,  $2_n$ ,  $3_n$ , ...,  $n_n$ , and the channels memorizing the return pulses -  $\bar{1}_n$ ,  $\bar{2}_n$ ,  $\bar{3}_n$ , ...,  $\bar{n}_n$ .  $\Pi$  is the action pulse channel and  $\bar{\Pi}$  the return pulse channel. The

Card 1/4

22916

S/121/61/000/007/001/004

D640/D112

Designs of pneumatic counting-memory systems

The system in (Fig. 1) is symmetric, with only one channel for each received pulse (both action and return), and the bottom one is asymmetric and memorizes action pulses only. The "memorizing valves" are four-way air-distribution valves. Pulse amplifiers (Fig. 3) in the form of three-way valves may be used in the units for compensating pressure drop in the air lines. A weak pulse acts on the membrane (1), the membrane pushes the pusher (2), and the valve (3) opens wider and passes a high-pressure pulse from the line. The duct from the amplifier to the "memorizing valve" is connected to the atmosphere when the amplifier is in the zero position. The article includes descriptions of high-order units built up from simple counting-memory units by means of addition and multiplication operations, and calculations for determining the necessary number of valves for different arrangements. Two practical examples are given - a simple binary unit controlling the switch of a conveyor transporting parts, and a unit in a storage hopper in an automatic transfer machine giving control commands after the passage of every sixth part. There are 10 figures and 1 Soviet-bloc reference.

Card 2/4

S/101/02/02/10/14/1/110  
2040/D115

AUTHORS: Shekertakev, V.I., Pomerantsev, L.M., and Yuditskiij, S.A.

APPENDIX: Universal pneumatic command units

PHONIC: Straight instrument, <sup>3/4</sup> in. 2, 1912, 5-10

**TEXT:** A new rotor-type command unit developed by ENIIS is described, and in connection with system combinations proposed for pneumatically controlling automatic machines which require quick settings for different operational cycles, pneumatic control units with air distributor blocks are discussed. Schematics of different operators and examples of possible control circuits are given. References are made to Soviet and English-language sources dealing with pneumatic control circuits and memory valves controlling logic circuits. One suggested control circuit corresponds to an asymmetric counting-memory unit previously described by the authors (Ref. 3: Stanki i instrument, no. 7, 1961). The new rotor-type command unit, shown in a diagram, includes a camshaft bearing a sprocket, driven by a pneumatic piston, and includes a four-way valves actuated by the cams. It is suggested that auxiliary four-

$$2\pi/2^6 = \pi/64$$

Universal pneumatic command units

S/121/62/GCC/102/c11/31;  
D040/D113

Any valves should be modified in design when used in cases where damage may be caused by an unintended air pressure drop in the system. The 41 re-tionated rotor-type units have been developed for 12 and 24 control signals. There are 15 references and 10 references: 7 Soviet-block and 3 non-Soviet-block. The three English-language references are: W.L. Morrison, "Pneumatic Control Systems", "Automation Progress", no. 3, 1951; Cowherd, "Design of Pneumatic Logic Circuits", "Product Engineering", October, 1956; Cameron, "Valve Actuated Memory Parallel Logic Circuits", "Product Engineering", May 1958.

Approved 2/2

SHCHERBAKOV, V.I.

Design of pneumatic circuits with a path control. Stan.i instr.  
33 no.5:3-8 My '62. (MIRA 15:5)  
(Pneumatic control)

S/876/62/000/000/005/007  
E191/E481

AUTHORS: Shcherbakov, V.I., Yuditskiy, S.A.

TITLE: The application of pneumatic power to the automation  
of production processes

SOURCE: Proyektirovaniye i ekspluatatsiya avtomaticheskikh liniy  
mekhanicheskoy obrabotki. Mosk. dom nauchno-tehn.  
prop. Ed. by A.P. Vladziyevskiy. Moscow, Mashgiz.  
1962. 205-233

TEXT: The spread of pneumatic power in the automation of  
engineering production is assisted by the rapid action, simple  
design for complex cycles, long life, explosion-proof quality,  
reliable operation in a wide range of temperatures, easy mains  
distribution and simplicity of design and maintenance inherent in  
pneumatic equipment. A disadvantage is the low pressure of  
compressed air systems used in practice. Another disadvantage is  
the absence of the steady rate of displacement which is overcome  
by hydro-pneumatic devices. Pneumatic devices are especially  
useful in modernization projects. Pneumatic components are  
described and illustrated including pneumatic cylinders,  
distribution pipelines, moisture separators, pressure regulators,

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S/876/62/000/000/005/007  
E191/E481

The application of pneumatic ...

oil atomizers, decelerating (snubbing) control valves, selector valves, air operated control valves and others. Examples of pneumatic circuits are given, including a system for continuous reciprocation of a pneumatic cylinder and a pneumatic transmission with 2 cylinders. Pneumatic systems for complex automatic cycles are divided into systems with program controllers and systems with memorizing valve elements. In the first system, a controller containing a programming unit with cams provides the sequence of the cycle. After each stroke of a pneumatic cylinder, the distribution camshaft is turned and issues the subsequent control signal. In the second system, the desired sequence is ensured by pneumatic devices, such as memorizing control valves and selector valves and by the use of limit valves with pneumatic return. Examples are illustrated and described for each of the two systems. A design procedure is given in detail for the two-cylinder pneumatic drive. There are 19 figures and 2 tables.

Card 2/2

PUTYAGO, Yuriy Sergeyevich; SOKOLOV, A.G., retsenzent; SHCHERBAKOV, V.I., retsenzent; KITAYENKO, G.I., nauchn. red.; KVOCHKINA, G.P., red.; KONTOROVICH, A.I., tekhn. red.

[Manual for ship electricians] Spravochnik sudovogo elektromontazhnikha. Leningrad, Sudpromgiz, 1963. 672 p.  
(MIRA 17:1)

ASHURKOV, Yevgeniy borisovich; GLIN, A.V., re-senzzent;  
SHCHERBAKOV, V.I., retsenzent; EYDEL', A.S., nauchn.  
red.;

[Preparation for the installation of electrical equipment  
on ships] Podgotovka k elektrmontazhnym rabotam na su-  
dakh. Leningrad, Sudostroenie, 1964. 66 p.  
(MIRA 18:1)

GERTS, Ye.V.; KREYNIN, G.V.; SHCHERBAKOV, V.I., inzh., retsenzent; GORBOV, F.S., inzh., red.

[Dynamics of pneumatic drives in automatic machinery] Dinamika pnevmaticheskikh privodov mashin-avtomatov. Moskva, Izd-vo "Mashinostroenie," 1964. 235 p.  
(MIRA 17:6)

TRANSMISSION, RADIOTEL, TELEGRAM, TELETYPE

IU.G.Batenko, an outstanding electromechanical technician, Avtom.,  
telem., sviaz' 9 no.0130 5 '65. (MIRA 12:9)

L 18452-66 EWT(m)

ACC NR: AP6002562

(N)

SOURCE CODE: UR/0286/65/000/023/0058/0058

AUTHORS: Ivanov, V. I.; Shcherbakov, V. I.; Trakhtenberg, L. I.

ORG: none

TITLE: Ultrasonic method for measuring product thickness. Class 42, No. 176713

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 23, 1965, 58

TOPIC TAGS: ultrasonic equipment, ultrasonic inspection, test method

ABSTRACT: This Author Certificate presents an ultrasonic method for measuring product thickness by determining the resonance frequency of the system which consists of the monitored product, a liquid layer, and an ultrasonic detector. To increase the accuracy of measuring small thicknesses, e.g., less than 0.5 mm, and to decrease the operating frequencies, the system is excited at two fixed frequencies. The liquid layer thickness is varied, obtaining system resonance successively for each of the frequencies. The thickness of the product is determined by the difference of the liquid layer thicknesses corresponding to the resonances.

SUB CODE: 13, 20/ SUBM DATE: 18Jan65  
Card 1/1

UDC: 531.717.1:534.8

Z

L 44276-66 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l) IIP(c) DJ/GD/RC  
ACC NR: AT6021726 SOURCE CODE: UR/0000/66/000/000/0042/0051

AUTHOR: Shcherbakov, V. I.

148  
BTI

ORG: none

TITLE: Rotary command systems of pneumatic control

SOURCE: AN SSSR. Institut avtomatiki i telemekhaniki. Pnevmoavtomatika (Pneumatic automation). Moscow, Izd-vo Nauka, 1966, 42-51

TOPIC TAGS: pneumatic servomechanism, pneumatic control system

ABSTRACT: The rotary command device described in this paper is a mechanical instrument used as a feedback loop in pneumatic control. It consists of a multiposition divider (normally 12 positions), selector and driving gear for periodic turns. The divider and selector are usually coupled together in one shaft with two separate wipers. The function of the command device is to drive the control cylinders in any desired sequence. Examples of several different applications of the command device are presented. Schematic diagrams for each such application together with the logical step-by-step operation are shown. The number of command positions determines the number of possible operations in one cycle. In some cases a position of the command device drives a subsystem which in turn performs more than one operation. The final signal of each operation energizes the gear of the shaft to be turned into the next position.

Card 1/2

SEDYKH, Veniamin Mikhaylovich; BOCHARNIKOV, Mstislav Mikhaylovich;  
SHUVALOV, Nikolay Grigoryevich; KONSTROMITINOV, Konstantin  
Nikolayevich; BURLUINSKIY, Boris Dmitriyevich; SHCHERBAKOVA,  
Lidiya Maksimovna; SHCHERBAKOV, Valentin Innokent'yevich

[Mining and dressing of minerals] Razrabotka i obogashchenie  
sliudianykh rud. Moskva, Neira, 1965. 247 p. (MIRA 18:12)

SHCHERBAKOV, V.K.

Conference on polyploidy in plants. Izv. AN SSSR Ser.biol. 24  
no.1:151-154 Ja-F '59. (MIRA 12:2)  
(POLYPLOIDY)  
(PLANT BREEDING)

SAKHAROV, V.V.; MANSUROVA, V.V.; PLATONOVA, R.N.; SHCHERBAKOV, V.K.

Detection of physiological resistance to ionizing radiation in  
autotetraploid plants of common buckwheat field. Biofizika 5  
no. 5:558-565 '60. (MJRA 13:10)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.  
(PLANTS, EFFECT OF RADIATION ON) (POLYPLOIDY)

SHCHERBAKOV, V.K.

Polyploidy in the breeding of ornamental plants. Biul. MOIP. Otd.  
biol. 65 no. 4:102-111 Jl-Ag '60. (MIRA 13:10)  
(POLYPLOIDY) (PLANTS, ORNAMENTAL)

SHCHERBAKOV, V.K.

Some cytological characteristics of the formation of club-shaped hairs in Pyrethrum carneum. Trudy Len. khim.-farm. inst. 12:119-121 '61.  
(MIRA 15:3)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.  
(PYRETHRUM)  
(LEAVES—MORPHOLOGY)

SCHERBAKOV, V.K.

Experimental development of polyploids in asparagus and  
their detection. Biul. Glav. sada no. 42:78-80 '61.  
(MIRA 17:3)

1. Institut biologicheskoy fiziki AN SSSR.

S/747/62/000/000/024/025  
D243/D307

AUTHORS: Sakharov, V. V., Mansurova, V. V., Platonova, R. N. and Shcherbakov, V. K.

TITLE: Cytological proofs of the physiological protection of autotetraploids of buckwheat (*Fagopyrum esculentum moench*) from the effect of ionizing radiation

SOURCE: Radiatsionnaya genetika; sbornik rabot. Otd. biol. nauk AN SSSR. Moscow, Izd-vo AN SSSR, 1962, 346-357

TEXT: The results are summarized of a comparative, cytogenetic study of the effect of different types of radiation on diploid and autotetraploid plants of common buckwheat (*Fagopyrum esculentum moench*), using dormant seeds kept under identical room conditions for the same period. The higher sensitivity of diploid forms to both  $\gamma$  and X radiation was confirmed, diploids showing depression of growth after 10 kr of  $\gamma$  radiation, and the autotetraploids after 50 kr. Cytological examination showed that the percentage of aberrant cells in nonirradiated controls was equal (2.2%) in both

Card 1/2

Cytological proofs of ...

S/747/62/000/000/024/025  
D243/D307

forms and that this situation was unchanged after irradiation. Tetraploids showed a smaller percentage of aberrants after 0.5, 1.0, 5.0 and 10.0 kr of  $\gamma$  radiation. This is discussed in relation to physiological protection and was confirmed by the authors' experiments reported in greater detail elsewhere (Biofizika, 1960, 5, no. 3, 556-560). The 4x forms were shown to be twice as stable as the 2x forms to high speed neutrons. The effect of  $\gamma$  radiation and subsequent storage was examined by storing the seeds for periods of 6 and 12 months after irradiation. After 6 months, the irradiated seeds of both forms showed a regular, steep rise in the percentage of chromosome aberration. This was more marked in the 4x forms. Both forms possess mechanisms which interfere with the conversion of potential into actual chromosome aberrations and these protective mechanisms are particularly effective in tetraploid forms. There are 3 figures and 2 tables.

ASSOCIATION: Institut biologicheskoy fiziki AN SSSR, Moskva (Institute of Biological Physics, AS USSR, Moscow)

Card 2/2

SHCHERBAKOV, V.K.

Methods for experimental production of polyploid plants. Trudy  
MOIP. Otd.biol. 5:110-120 '62. (MIRA 16:5)

1. Laboratoriya radiatsionnoy genetiki Instituta biofiziki AN  
SSSR, Moskva.  
(POLYPLOIDY)

DUBOVIK, I.V., SHUBINA, V.V.

Controlling the natural maturation process with the aid of cystamine  
and streptomycin. Dokl. AN SSSR 145 no. 2 427-429 Jl '62.  
(MFA 15:7)

I. Institut im sowjetischen Akademie AN SSSR. Chlen-korrespondent  
AN SSSR.  
(ZOOLOGY - MATURATION) (CYSTAMINE) (STREPTOMYCIN)

SHCHERBAKOV, V.K.

Types of polyploidization and reduction of chromosome sets.  
TSitologija 5 no.5:477-489 S-0 '62.

(MIRA 18:5)

1. Laboratoriya radiatsionnoy genetiki Instituta biofiziki  
AN SSSR, Moskva.

L 27843-65 EWG(j)/EWI(m)  
ACCESSION NR: AP5000093

8/0205/64/004/006/0862/0864

20

19

B

AUTHOR: Dubinin, N. P.; Shcherbakov, V. K.

TITLE: Antiradiation compounds as mutagens and antimutagens

SOURCE: Radiobiologiya, v. 4, no. 6, 1964, 862-864

TOPIC TAGS: Erlich carcinoma cell, onion cell, radioprotective agent, antiradiation drug, mutagenic property, antimutagenic property, antitumor property, arginine, mutation, mitosis, cystamine, cysteine

ABSTRACT: In the literature certain radioprotective compounds display mutagenic, antimutagenic, and antitumor properties depending on compound concentration and subject. The present study reports on investigation results of arginine activity in Erlich ascitic carcinoma cells and Allium fistulosum onion cells. Mutation frequency in the carcinoma cells was increased from 4.41 to 11.41% with an arginine concentration of 2 mg/ml and was increased to 14.07% with an arginine concentration of 20 mg/ml. In the onion cells mutation frequency increased with an arginine concentration of  $2 \cdot 10^{-1}$  mg/ml

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L 27843-65  
ACCESSION NR: AP5000093

and an antimutagen effect was displayed with a  $2 \cdot 10^{-4}$  mg/ml concentration. With the same radioprotective compound producing highly varied cytogenetic effects, research on the properties of various radioprotectors within a wide range of concentrations and under different physiological states of organisms appears of utmost importance. Orig. art. has: 3 tables.

ASSOCIATION: Institut biologicheskoy fiziki AN SSSR, Moscow  
(Biological Physics Institute AN SSSR).

SUBMITTED: 13Aug64

ENCL: 00

SUB CODE: LS

NR REF SOV: 008

OTHER: 014

Card 2/2

SHCHERBAKOV, V.K.

New data on the role of polyploidy and aneuploidy in the evolution  
and breeding of ornamental plants. Biul.Glav.bot.sad no.52:37-45  
'64.  
(MIRA 17:4)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.

SHCHERBAKOV, V.K.

Variability of morphological characters in plants in  
polyploidy. Dokl. AN SSSR 154 no.2:449-452 Ja'64.

(MIRA 17:2)

l. Institut biologicheskoy fiziki AN SSSR. Predstavлено  
академиком N.V. TSitsinym.

DUBININ, N.P.; SHCHERBAKOV, V.K.

Nature of the natural mutation process in *Vicia faba* and *Allium fistulosum* L. Dokl. AN SSSR 159 no.3:652-655 N '64  
(MIRA 18:1)

1. Institut biologicheskoy fiziki AN SSSR. 2. Chlen-korrespondent AN SSSR (for Dubinin).

L 41228-65 ENG(j)/EWT(m)

S/0020/64/159/004/0913/0914

ACCESSION NR: AP5000922

AUTHOR: Dubinin, N. P.; Shoherbakov, V. K.; Surkov, V. V.

TITLE: Antimutagenic and mutagenic effect of amino acids with  
antiradiation properties 19

SOURCE: AN SSSR. Doklady, v. 159, no. 4, 1964, 913-914

TOPIC TAGS: amino acid, arginine, cysteine, mutagen, antimutagen,  
radioprotective agent, mutation, Erlich carcinoma cell, Allium  
fistulosum onionABSTRACT: Literature sources indicate that certain antiradiation compounds act as mutagens and antimutagens depending on compound concentration and conditions. The present investigation compares the mutagenic and antimutagenic effects of two highly important amino acids with antiradiation properties, arginine and cysteine. In the first of two experimental series, Allium fistulosum onion seeds and Erlich ascitic carcinoma cell cultures were grown in different concentrations of arginine. Mutation frequency of the sprouting onion seeds increased with an arginine concentration of  $2 \cdot 10^{-1}$  mg/ml

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B

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L 41228-65

ACCESSION NR: AP5000922

and antimutagenic effects were displayed with arginine concentrations of  $2 \cdot 10^{-3}$  to  $2 \cdot 10^{-5}$  mg/ml. Mutation frequency of the Erlich ascitic carcinoma cells increased from 4.41 to 11.41% with an arginine concentration of 2 mg/ml and increased to 14.07% with an arginine concentration of 20 mg/ml. In the second experimental series Allium fistulosum onion seeds were grown in different concentrations of cysteine. Mutation frequency of the sprouting onion seeds increased significantly with a cysteine concentration of  $1 \cdot 10^{-1}\%$  and no antimutagenic effects were observed. Thus, arginine is characterized by a qualitative change acting as a mutagen in high concentrations and as an antimutagen in low concentrations. Cysteine, without displaying any antimutagenic effects, acts as a radioprotector and in high concentrations acts as a mutagen. The nature of the mutagenic, antimutagenic, and antiradiation properties displayed by these two amino acids and certain other compounds is not clear at this time and requires further research. Orig. art. has: 3 tables.

ASSOCIATION: Institut biologicheskoy fiziki Akademii Nauk SSSR  
(Institute of Biological Physics, Academy of Sciences SSSR)

Card 2/3

SUBMITTED: 12 PMG GT

L 54727-65 EWT(1)/EWA(j)/EWA(b)-2 JK  
ACCESSION NR: AP5017922

UR/0020/64/159/005/1148/1150

AUTHOR: Dubinin, N. P. (Corresponding member AN SSSR); Shcherbakov, V. K. 18  
17  
18

TITLE: Cytological analysis of the antimutagenic action of arginine and streptomycin

SOURCE: AN SSSR. Doklady, v. 159, no. 5, 1964, 1148-1150 6

TOPIC TAGS: cytology, plant genetics, arginine, streptomycin

ABSTRACT: The nature of the antimutagenic effect of arginine was studied by determining in a cytological investigation changes produced in cells of the rootlets of onion plants (*Allium fistulosum L.*). To determine the nature of the antimutagenic effect produced by streptomycin, changes in the cells of the rootlets of horse bean plants (*Vicia faba L.*) were studied. In either case, the distribution of chromosome rearrangements according to type did not differ from that observed in control plants of the species used in the

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L 54727-65  
ACCESSION NR: AP5017922

experiments; only the total number of mutations was reduced. This indicated that the action of the antimutagenic agents studied was unspecific and quantitative rather than qualitative - i.e., it did not affect any particular type of chromosome rearrangement, but all of the normally occurring rearrangements to an equal extent.

Orig. art. has: 2 tables.

ASSOCIATION: Institut biologicheskoy fiziki Akademii nauk SSSR (Institute of Biological Physics, Academy of Sciences SSSR)

SUBMITTED: 12Aug<sup>64</sup>

ENCL: 00

SUB CODE: LS

NR REF SOV: 008

OTHER: )005

JPRS

Card 2/2

L 10243-66 EWT(1)/EWA(h)

ACC NR: AP6002409

SOURCE CODE: UR/0105/64/000/010/0031/0036

AUTHOR: Shcherbakov, V. K. (Novosibirsk); Putilova, A. T. (Novosibirsk); Kopach, Ye. N. (Novosibirsk); Vorob'yev, G. V. (Novosibirsk)

ORG: none

TITLE: Power takeoff from half-wave transmission lines

SOURCE: Elektrichestvo, no. 10, 1964, 31-36

TOPIC TAGS: electric power production, transmission line

ABSTRACT: The half-wave homogeneous lines considered are 1500 to 3000 km. in length, and the problems involved in taking off power in parallel or in series at various points in the line are analyzed in detail. Line voltage stability improves as the pick-off points are moved closer to the ends of a half-wave line. Within 1/5 the line length from the ends, parallel transformer-type power take-off is adapted easily whereas series coupling is better toward the center. The equivalent circuit and voltage distribution curves are shown for the line for parallel-transformer power take-off near the ends of the line and for series transformer take-off toward the center. Experiments and calculations show that when power take-off is 20% of the natural power or less, parallel unified intermediate systems coupled toward the line ends are stable, whereas series take-offs are

Card 1/2

UDC: 621.315.05

L 10243-66

ACC NR: AP6002409

stable toward the center of the line under the same conditions. At the line center an intermediate system is practically independent of the line mode and stability. A combined parallel-series transformer take-off may be used over the entire line with stable operation, and by careful selection of parameters, intermediate parallel-series systems can be decoupled from the line modes at the center of the line. Orig. art. has: 16 figures, 1 table, 11 formulas. [JPRS] O

SUB CODE: 09 / SUBM DATE: 17Mar64 / ORIG REF: 020

Card 2/2

DUBININ, N.P.; SHCHERBAKOV, V.K.; MOKEYEVA, N.P.

Cytogenetic analysis of the mutagenic effect of chemical  
mitogens of a new group and some characteristics of natural  
and induced mutation of chromosomes. Genetika no.2:67-72  
"g '65. (MIFI A 18:12)

I. Institute of Biophysical Physics, Academy of Sciences of  
the U.S.S.R., Moscow.

DUBININ, N.P.; SHCHEBRAKOV, I.K.; ZHURAV, B.N.

Phases of a cell cycle and the mutagenic effect of some nitrogen compounds. Genetika no. 1073-56 pg 165.

L. Institute of Biological Chemistry, Academy of Sciences of the U.S.S.R., Moscow.

SHCHERBAKOV, V.K.

On 100th meeting, dedicated to the centennial of Gregor Mendel's  
discovery, held in Moscow on June 25, 1965. Genetika no.2:179-  
180 Ag '65.  
(MIRA 18:10)

YAKUTSK, U.S.S.R., Academy of Sciences, prof.

Concerning I.I. Sverdlatsev's article "Principles for  
the development of electric power distribution networks." Sov.  
vuz. ucheb. zavod energ. & mekh. 1965 N 165.

(MIA 1871)

I. Siberian nuclear-electric power institute, professor,

REPRINT, 1978; SSS (BUDGET), 1978.

Interaction between natural and artificial materials. Sovl. AN SSSR  
IZO no.1:2184-19. Ja 1978. (VTEI 18:2)

1. Institut biologicheskoj fiziki VFF SSSR. 2. Chlen-korrespondent  
AN SSSR (for Rubin).

BURININ, N. N., et al., Chromosome mutation spectrum at different levels of natural cell

mutation. Fizika. AN SSSR. Vol. no. :1434-1436. Ap '65. (MIRA 16:5)

1. Institut biologicheskoy fiziki AN SSSR. 2. Chlen-korrespondent  
AN SSSR (for Burinin).

DUBININ, N.N.; SHNEIDERMAN, V.K.; ZEMLER, G.N.; TIVKOV, I.A.

Specificity of the object in induced mutagenesis. Dokl. AN SSSR  
165 no.1:230-31. N '75. (MIRA 18:10)

1. Institut biologicheskoy fiziki AN SSSR. P. Shilen-korespondent  
AN SSSR (for Dubinin).

SHCHERBAKOV, V.K.

Role of polyploidy and aneuploidy in the evolution of angiosperms and gymnosperms. Trudy MOIP Gtd. biol. 13:238-256 '65.  
(MIREA 19:1)

DUDINIK, N.P., CH. KUDRIKOV, V.B.; BULGAKOV, P.A.

Natural mutation problem with mutagenic cytogenetic effect of  
natural mutagens. Genetika no. 5:22-32. 1965.

(MIRA 13012)

J. Inst. Russ. Biologicheskay Filial' NII SSSR, Moskva. Submitted  
June 5, 1965.

SHCHERBAKOV, V.K., kand. biolog. nauk (Moskva)

100th anniversary of the discoveries of Gregor Mendel; ceremonial  
meeting at the House of Scientists in Moscow. Priroda 54 no.8:  
(MIRA 18:8)  
113-114 Ag '65.

L-38252-66

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JK

ACC NR: AP6028671

SOURCE CODE: UR/0020/66/166/005/1214/1216

AUTHOR: Dubinin, N. P. (Corresponding member AN SSSR); Suykova, L. A.

Shcherbakov, V. K.

ORG: Institute of Biological Physics, AN SSSR (Institut biologicheskoy fiziki AN SSSR)

TITLE: Specific modification of mutational variations of chromosomes induced by a chemical mutagen

SOURCE: AN SSSR. Doklady, v. 166, no. 5, 1966, 1214-1216

TOPIC TAGS: plant genetics, plant chemistry, biologic mutation

ABSTRACT: Mutation of cells of wheat plants (*Triticum aestivum L.*) under the action of  $\beta$ -( $\beta'$ ,  $\beta''$ -dichlorethylamino) ethylphosphonic acid diethyl ester (K-32) was studied. Treatment of wheat sprouts with K-32 alone resulted in 7.6% of chromatid dicentrics among the chromosome rearrangements produced. When ATP was applied before K-32 or simultaneously with it, the number of chromatid dicentrics increased up to 27.1%. Application of ATP after K-32 did not alter the number of chromatid dicentrics significantly vs. that observed on treatment with K-32 alone. The results obtained indicated that addition of ATP by reason of the supplementary energy contributed by this compound modified the mutation process induced by the alkylating chemical mutagen K-32 and endowed the chromosome fragments with a capacity for fusion which was otherwise lacking. The mutation process thus became similar to that occurring in cells of *Vicia faba* and human cells *in vivo* and *in vitro* in natural mutation and under the action of mutagenic factors. By using ATP, the type of mutation could be changed and a differential control over the induced mutation process exercised. Orig. art. has: 1 table. [JPRS: 36,932]

SUB CODE: 06 / SUBM DATE: 18Sep65 / CRIG REF: 008 / OTH REF: 009

Card 1/1000

SHCHERBEKOV, V. K.

Shcherbekov, V. K. and MAzur, L. D. "Compensation for assymetry in electrical transmission equipment", Izbestiya Tomskogo politekhn. in-ta im. Kirova, Vol. LXVI, Issue 1, 1948, p. 79-82.

SO: U-4631 , 16 Sept. 1953, (Letopis 'Zhurnal 'nykh Statey, No. 24, 1949)

GROMOV, V. A.

36628 Shcheglov, V. A. Dvortsovaya potovit' politekhnicheskiye Instituty.  
Tekhnika vuzov. s. 1941, No. 11, c. 37-52

SO: Letnacis' zhurnal' russk. Stately, Vol. 50, Moskva, 1949

USSR/Electricity - Distribution Systems Apr 51  
Books

"Review of A. Ya. Ryabkov's 'Electrical Design of Distribution Systems,' " Prof V. K. Shcherbakov, Dr Tech Sci, Tomsk Polytech Inst

"Elektrichestvo" No 4, pp 94, 95

Reviewer lauds book as one of best texts on this subject for students of higher educ institutions and practical engineers. Book contains 8 chapters: I. Introduction (definitions, history, etc); II. Selection of Wires and Cables According to Heat Conditions; III. General Problems

178T52

USSR/Electricity - Distribution Systems Apr 51  
(Contd)

of the Electrical Design of Distribution Systems; IV., V., VI., and VII. Electrical Design of Disconnected Local Distribution Systems, of Closed Local Distribution Systems, of High-Voltage Transmission Lines and of Rayon Distribution Systems; and VIII. Voltage Regulation in Distribution Systems. Published by "Gosenergoizdat," 400 pp, R 16.20.

178T52

SHCHERBAKOV, V.K., doktor tekhnicheskikh nauk, professor; PUTILOVA, A.T.,  
kandidat tekhnicheskikh nauk.

Integrated operation of a.c. and d.c. power systems under  
normal conditions. Trudy Transp.-energ.inst.Zap.-Sib.fil.  
AN SSSR no.6:3-13 '56. (MLRA 10:2)

(Electric power distribution)

SOV/112-57-5-10061

8 (3)

Translation from: Referativnyy zhurnal. Elektrotehnika, 1957, Nr 5, p 68 (USSR)

AUTHOR: Shcherbakov, V. K., Meshcheryakov, K. P.

TITLE: On the Problem of Using 110-kv Two-Wire Ground-Return Lines  
(K voprosu ob ispol'zovanii liniy 110 kv po sisteme "dva provoda -- zemlya")

PERIODICAL: Tr. Transp.-energ. in-ta Zap.-Sib. fil. AS USSR, 1956,

Nr 6, pp 15-18

ABSTRACT: 110-kv two-wire ground-return lines are expedient to use for supplying power to outlying kolkhozes and sovkhozes from large electric stations. Capacitive currents in the wires of such a line are responsible for the asymmetry of the three-phase system. The total asymmetry in the transmission line, generators, and transformers is determined by the load and capacitive negative-phase-sequence currents. In lines under 150 km long, the line capacitance reduces the overall current asymmetry. With lines over 150 km long, the line capacitance determines the total asymmetry of currents in

Card 1/2

SHCHERBAKOV, V.K.; VASIL'YEV, A.I.; PUTILOVA, A.T.; ZAYNULLINA, R.S.

Outlook for the development of power resources in Western Siberia  
and Krasnoyarsk Territory. Izv. vost. fil. AN SSSR no.1:79-87 '57.  
(MIRA 11:4)

1. Zapadno-Sibirskiy siliial AN SSSR.  
(Siberia, Western--Electric power)  
(Krasnoyarsk Territory--Electric power)

SOV/163-58 1 3/57

AUTHORS: Antipin L. N., Vashenin S. F., Shcherbakov V. K.

TITLE: The Electric Conductivity of the System Graphite Electrode  
- Cryolite Melt - Dissolved Aluminum (Elektropervodnost  
sistemy grafitovyy elektrod - kryolitovyy rasplav - rast  
vorennyy aliuminii)PERIODICAL: Nauchnyye doklady vysshyey shkoly. Metallurgiya, 1958.  
Nr 1, p. 1-15 (USSR)ABSTRACT: The graphite electrode and cryolite melt were investigated  
in regard to their electric conductivity by the addition  
of aluminum metal. The electric conductivity of this system  
was determined in relation to the cryolite ratio  $\frac{\text{NaF}}{\text{AlF}_3}$ .

The electric conductivity of the cryolite melt is influenced  
by the compounds forming in the interaction between aluminum  
and graphite electrodes. On addition of the metal to the  
cryolite melt the electric conductivity is changed according  
to the modification of the cryolite ratio. At the cryolite  
ratios 1/3 and 2/7 a maximum of the electric conductivity

Card 1/3

SOV/63 50 : 3/73

The Electric Conductivity of the System Graphite Electrode - Cryolite Melt  
Dissolved Aluminum

occurs and at the cryolite ratio  $\frac{NaF}{AlF_3} = 2/3$  a minimum occurs.

The results show that in the electrolysis of the cryolite melt's complex compounds are formed which modify their structure and composition at the cryolite ratios 1/9, 2/3 and 2/7.

The presence of minima and maxima in the electric conductivity in the curves proves that the interaction between the carriers  $Na^+$  and  $Al^{3+}$  and the fluorine anions is very complicated. In the cryolite melt complicated cryolite complexes of the type  $Al_{n,m}F^{\pm}$  probably exist. The compositions of these complexes changes according to the modification of the cryolite ratio. On the addition of the metal to the metal melt a considerable change in the electric conductivity occurs. This change is probably based on the interaction between aluminum and carbon and is also dependent on the change of the structure especially in the vicinity of the electrode zone. There are 3 figures and 7 references 2 of which are Soviet.

Card 2/3

SOV/163-58-1-3/53

The Electric Conductivity of the System Graphite Electrode - Cryolite Melt  
Dissolved Aluminum

ASSOCIATION: Ural'skiy politekhnicheskiy institut  
(Ural Polytechnical Institute)

SUBMITTED: October 1, 1957

Card 3/3

BUDENOV, V.K.; LOKASHOV, E.S.

Self-excitation of a generator in controlled electric transmissions  
(possibility of the participation of generator reactivity in the  
control). Izv.Sib.otd.AN SSSR no.5:36-41 '59.  
(MIRA 12:10)

1. Transportno-energeticheskiy institut Sibirskogo otdeleniya  
Akademii nauk SSSR.  
(Electric generators)

OL'SHEVSKIY, O.V.; SHCHERBAKOV, V.K.

Symmetrical short circuits in regulated electric transmission  
lines. Izv. Sib. otd. AN SSSR no.6:18-26 '59. (MIRA 12:12)

1.Transportno-energeticheskiy institut Silirskogo otdeleniya  
Akademii nauk SSSR.  
(Short circuits)

ORNATSKIY, A.P., kand.tekhn.nauk; SHCHERBAKOV, V.K., inzh.

Intensification of heat exchange in the critical region by  
means of ultrasound [with summary in English]. Teploenergetika  
6 no.1:84-85 Ja '59. (MIRA 12:1)

1. Kiyevskiy politekhnicheskiy institut.  
(Heat--Transmission) (Ultrasonic waves)

SHCHERBAKOV, V.K.

Long distance electric power transmission over halfwave lines.  
Izv. Sib. otd. AN SSSR no.7:3-15 '59. (MIRA 12:12)

1.Transportno-energeticheskiy institut Sibirskogo otdeleniya AN  
SSSR.  
(Electric lines)

SHCHERBAKOV, V.K., doktor tekhn. nauk prof.; OL'SHEVSKIY, O.V., kand. tekhn. nauk

Problem of the effectiveness of long distance a.c. transmission.  
Izv. vys. ucheb. zav. energ. 3 no.2:1-10 F '60. (MIRA 13:2)

1. Novosibirskiy elektrotekhnicheskiy institut (for Shcherbakov).
2. Transportno-energeticheskiy institut Sibirsogo otdeleniya AN SSSR (for Ol'shevskiy). Predstavlena kafedroy elektricheskikh stantsiy, setey i sistem.

(Electric power distribution)

SHCHERBAKOV, V.K., KARYMOV, P.G.

Effect of intermediate taps on the static stability of tuned  
transmission lines. Izv.Sib.otd.AN SSSR no.7:11-18 '60.  
(MIRA 13:8)

1. Transportno-energeticheskiy institut Sibirskogo otdeleniya  
AN SSSR.  
(Electric lines)

SHCHERBAKOV, V.K.

Possibilities of half-wave tuned electric power transmissione. Trudy  
Transp.-energ. inst. Sib. otd. AN SSSR no.11:3-20 '60. (MIRA 14:6)  
(Electric power distribution)

SHCHERBAKOV, V.K.; OL'SHEVSKIY, O.V.

Engineering and economic indices of a half-wave tuned three-phase  
2,500 km. long electric power transmission line. Trudy Transp.-  
energ. inst. Sib. otd. AN SSSR no.11:81-90 '60. (MIRA 14:6)  
(Electric power distribution)

Report presented at the Conference on Heat and Transfer,  
Moscow, USSR, 5-10 June 61.

RM-202  
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270. V. I. Borovoy, I. K. Tsvet, Effect of Polymers on Heat Transfer in a Pipe.
271. A. J. Zao, The Heat Transfer Coefficients for Flow in a Pipe.
272. S. I. Brinkman, I. S. Shchegoleva, Experimental Investigation of G.I.P. and Temperature Jump at Freefall Air Flow along the Solid Wall.
273. A. N. Deryabin, On Some Results of the Investigation of Heat Transfer by Radiant and Convection.
274. A. S. Gladubin, O. I. Polyakova, Heat Transfer at the Process of Radiative-Convective Heat Transfer in a Pipe.
275. V. A. Baum, Influence of the Mass Transfer Coefficient on Water Boiling-Dissolution in the Assembly of the Water-Vapor-  
Inert-Gasous Mixture.
276. V. I. Subbotin, S. P. Krasnov, V. I. Slobodov, Investigation of Heat Transfer by Liquid Metal Heat Transfer in a Pipe of Small Diam-  
eter.
277. E. M. Fadilov, Some Principal Problems of Critical Methods of Heat Transfer-Surface Treatment.
278. P. L. Borelli, Application of the Thermodynamic Stability Principles for Heat Transfer Calculations.
279. N. N. Medvedev, Generalization of the Newton Law of Cooling of Bodies.
280. V. K. Slobodkin, Principles of Heat Transfer Through the Wall  
With Consideration of the Surface Polarity.
281. A. V. Kudryavtsev, Investigation of Convective Heat Transfer in Adhesive Bond Preparation.
282. C. J. Semmler, Some Problems of Heat and Mass Transfer Studies in the Reaction Processes.
283. I. T. Epstein, Investigation of Heat Transfer Patterns and Correlation Surface by Means of Interferometric Method.
284. M. V. Slobodkin, S. S. Romanov, Effect of Inertial and Disturbing Forces on Heat Transfer Coefficient.
285. Z. I. Kostylev, M. E. Strelcov, Critical Heat Flow at High Pressures.
286. I. V. Slobodkin, Investigation of the Correlation Coefficient Depend-  
ence on the Heat Transfer Coefficient.

26 57400  
26 5100

AUTHOR:

Shcherbakov, V.K.

TITLE:

Special properties of heat transfer through a wall  
with longitudinal ribs, with surface boiling of the  
cooling liquid

SOURCE:

Soveshchaniye po teplo- i massoobmenu. Minsk, 1961.  
Tezisy dokladov i soobshcheniy (Dopolneniye), 43

TEXT: Theoretical and experimental investigations of the properties of heat transfer through a wall with longitudinal ribs, with surface boiling of the cooling liquid, the heat flow exceeding  $10^6$  kcal/m<sup>2</sup>.h, are important for the correct design of heat exchange devices. The general condition of utility of ribs is  $1/\alpha_g F_g > (1/\alpha_r F_r) + \phi_r$ ,  $\phi_r$  being the thermal resistance of the body of the rib. An approximate equation has been obtained for temperature distribution on the smooth surface at the base of a rib:  $\theta_g = (\theta_0 - q_g/\alpha_g) \exp(-x\sqrt{(\alpha_g/\delta_g\lambda)}) + q_g/\alpha_g$  [Abstracter's note: Indices g

Card 1/2

SHCHIRZANOV, V.K., doktor tekhn.nauk, prof.

Turned electric power transmission systems. Elektrichestvo  
no.8:25-30 Ag '61. (MIRA 14:10)

1. Sistemata elektricheskogo obespecheniya SSSR.  
(Electric power distribution)